## REMARKS

Applicants respectfully request examination and consideration of the claims in view of the above amendments. Claims 11-19, 24, 26-28 and 30 were pending. Within the Office Action, Claims 11-19, 24, 26-28 and 30 have been rejected. By the above amendments, Claims 11-14, 16, 18, 19, 24, 26-28 and 30 have been amended. Accordingly, Claims 11-19, 24, 26-28 and 30 are pending in this application.

**Amendment to Claims**

By the above amendments, 11, 18, 24, 28 and 30 have been amended to recite "a router alert option header indicating that the remainder of the hop-by-hop extension header is optional for a router to read." Support for the above limitation can be found within the Present Specification at least at page 3, line 17 to page 4, line 4.

**Drawings**

Within the Office Action, the drawings have been objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims. Specifically, it is asserted that the drawings do not show one or more receivers, one or more detectors, or one or more recovery elements set forth in Claims 1 and 30. By the above amendments, the phrases "one or more receivers," "one or more recovery elements" and "one or more detectors" have been removed from the claims. Accordingly, the drawings now show every feature recited in the Claims and the objection should be withdrawn.

**Claim Objections**

Within the Office Action, Claims 11-14, 16, 18, 19, 24, 26-28 and 30 have been objected to due to informalities. Specifically, it is asserted that the claims lack proper antecedent basis and the term "internet" should be replaced with "Internet." By the above amendments, the claims have been amended to establish proper antecedent basis and "internet" has been replaced with "Internet." Accordingly, the antecedent basis and "internet" objections should be withdrawn.

Also within the Office Action, it is asserted that Claims 11 and 30 do not recite a proper format for invoking 35 U.S.C. §112, sixth paragraph, thus amendment to such a format is suggested. However, as described in detail below, Claims 11 and 30 are not intended to invoke, nor do they invoke 35 U.S.C. §112, sixth paragraph, as means plus function claims. In particular,

both Claims 11 and 30 recite the structure of "a gateway support node" and "one or more controllers" which are both structural terms which violate the first prong of 35 U.S.C. §112, sixth paragraph (i.e. the claim limitation uses a non-structural term that does not have a structural modifier). The further functional language of the claims is all performed by the above cited structures such that the language serves as functional limitations to the structures as defined in MPEP 2173.05(g). Accordingly, the suggested amendment is unnecessary and the objection should be withdrawn.

**Rejections under § 112**

Within the Office Action, Claims 11-17, 26, 27 and 30 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Specifically, it is asserted that the Examiner is applying 35 U.S.C. §112, sixth paragraph, to the claimed "one or more detectors" and "one or more recovery elements," and that the written description fails to disclose the corresponding material or acts for the claimed function. However, firstly, by the above amendments, the terms "one or more recovery elements" and "one or more detectors" have been removed from the claims. Secondly, with regard to the Claims as currently written, 35 U.S.C. §112, sixth paragraph does not apply. In particular, because the independent Claims 11 and 30 both recite structural terms (e.g. a gateway support node, one or more controllers) that perform all of the described functions/operations, each of the presently claimed limitations fail the first prong of 35 U.S.C. §112, sixth paragraph, which requires a non-structural element to be recited. Indeed, because structural elements are cited as performing each of the functions, it is clear that the claimed functions are in fact functional limitations under MPEP 2173.05(g), which states "[t]here is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971). A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step. In Innova/Pure Water Inc. v. Safari Water Filtration Sys. Inc., 381 F.3d 1111, 1117-20, 72 USPQ2d 1001, 1006-08 (Fed. Cir. 2004)."

Moreover, within the previous Office Action, it was asserted that for clarification of the claim limitations, each functionality should be performed by corresponding structure, e.g. receiver, detector, controller, etc., instead of the gateway node. The Applicant respectfully disagrees with this assertion. The recitation of the gateway support node provides sufficient structure to make the Claims 11 and 30 clear. Specifically, one skilled in the art would understand that a gateway support node (GGSN) is a physical device as well as understanding the details of its structure and capabilities as they are well known in the art. Further, the functions recited within the claims are such that one skilled in the art would clearly understand how the GGSN would be configured such that it could perform them. As a result, in combination with the description of the GGSN within the Present Specification, one skilled in the art would find Claims 11 and 30 to be supported within the Present Specification and to be sufficiently definite. Accordingly, Claims 11 and 30 are not indefinite and the rejection should be withdrawn.

Claims 12-17, 26 and 27 are dependent on the independent Claim 11. As described above, the independent Claim 11 is definite. Accordingly, Claims 12-17, 26 and 27 are all also allowable as being dependent on an allowable base claim.

**Rejections under 35 U.S.C. §103**

Within the Office Action, Claims 11, 12, 15-18 and 24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,845,100 to Rinne et al. (Rinne) in view of Applicant's admitted prior art (AAPA) and in further view of U.S. Patent No. 7,522,601 to Morrow et al. (Morrow). The Applicants respectfully disagree.

Rinne is directed to basic QoS mechanisms for wireless transmission of IP traffic. Specifically, Rinne teaches IP packets classified according to QoS are mapped on to radio bearers according to various mechanisms. [Rinne, Abstract] However, as recognized in the Office Action, Rinne does not teach 1) a router alert option header indicating that the remainder of the hop-by-hop extension header is optional for a router to read, 2) a value field indicating that the remainder of the hop-by-hop header is provided for the gateway support node, 3) to detect that the router alert option header in the hop-by-hop extension header is provided for the gateway support node with at least one of the one or more detectors, and 4) upon detecting the value field indicating that the remainder of the hop-by-hop extension header field is for the gateway support node. [Office Action, page 13] Additionally, Rinne does not teach that each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets. Within the Office Action, it is asserted that this is taught in Rinne because it discusses a

"flow" which is a combination of source and destination host addresses. [Office Action, page 7] However, the combination of a source and destination host address is not the same as a *home* address. Indeed, because Rinne does not deal with mobile IP (i.e. the roaming of nodes), Rinne has no need for home addresses at all, much less that each bearer is defined by a home address of the nodes communicating the packets. Thus, Rinne does not teach that each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets. Moreover, Rinne does not teach a source home address of a mobile correspondent node communicating the internet packets. Within the Office Action, it is asserted that this limitation is taught in Rinne at col. [8], lines 49-55 and 57-63 by "the combination of packet classifier and the QoS classifier residing in the UTRAN or CN can be used to classify packets destined for various bearers of various mobile terminals according to different classes ... IP packets from an IP network comprising several different flows having a combination of the source and destination host address." However, nowhere in this section of Rinne is a *home* address of a correspondent node discussed. Rather, it merely discusses the classification of packets and a combination of a host and destination address, not a home address. Thus, Rinne does not teach a source home address of a mobile correspondent node communicating the internet packets. Accordingly, Rinne does not teach the presently claimed invention.

As recognized in the Office Action, nothing in the AAPA teaches 1) a router alert option header indicating that the remainder of the hop-by-hop extension header is optional for a router to read, 2) a value field indicating that the remainder of the hop-by-hop header is provided for the gateway support node, 3) to detect that the router alert option header in the hop-by-hop extension header is provided for the gateway support node with at least one of the one or more detectors, and 4) upon detecting the value field indicating that the remainder of the hop-by-hop extension header field is for the gateway support node. [Office Action, page 13] Additionally, AAPA does not teach that each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets. Further, AAPA does not teach a source home address of a mobile correspondent node communicating the internet packets. Accordingly, AAPA does not teach the presently claimed invention.

Morrow is directed to a filtered router alert hop-by-hop option. Specifically, Morrow teaches a filtered router flag value in an IP packet, wherein the filtered router flag value identifies the information packet as possibly requiring a slow-path routing technique. [Morrow, Abstract] However, Morrow does not teach a router alert option header indicating that the remainder of the hop-by-hop extension header is *optional* for a router to read. Instead, the flags of Morrow

indicate when slow-processing is necessary (i.e. when more information is required to read), not when the remainder of the hop-by-hop extension header is *optional* for a router to read. Further, Morrow does not teach a value field indicating that the remainder of the hop-by-hop header is provided for the *gateway support node*. Within the Office Action, it is asserted that this is taught in Morrow by an M flag that indicates slow routing on an interface that constitutes a layer 3 mobility-enabled edge router. [Office Action, page 14] However, a layer 3 mobility-enabled edge router is not the same as a gateway support node. Instead, Morrow merely defines the layer 3 mobility-enabled edge router as one close to the mobile device or correspondent node performing local mobility management functions, which is not the same as teaching a gateway support node. Indeed, it is well known in the art that a gateway support node is a special node in a packet data communications network that is not the same as and thus cannot be taught by reference to other types of nodes. Therefore, Morrow does not teach a value field indicating that the remainder of the hop-by-hop header is provided for the *gateway support node*. Accordingly, Morrow does not teach the presently claimed invention.

Thus, because neither Rinne, AAPA and Morrow teach 1) each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets, 2) a source home address of a mobile correspondent node communicating the internet packets, 3) a router alert option header indicating that the remainder of the hop-by-hop extension header is *optional* for a router to read or 4) a value field indicating that the remainder of the hop-by-hop header is provided for the *gateway support node*, nor can their combination. Accordingly, the combination of Rinne, AAPA and Morrow does not teach the presently claimed invention.

The independent Claim 11 is directed to a gateway support node. The gateway support node of Claim 11 is configured to provide an interface between an external packet data communications network and a packet radio network, the packet radio network providing a plurality of packet data bearers for communicating Internet packets with nodes attached to the packet radio network, each of the packet data bearers being defined with respect to a source home address of nodes communicating the Internet packets, the gateway support node being further configured to receive an Internet packet comprising a header field, the header field including a source field identifying a source address of the Internet packet, a destination field identifying a destination address of the Internet packet, and a next header field identifying whether an extension header follows the header field, a type of the extension header, and whether the extension header includes a hop-by-hop extension header, the hop-by-hop extension header comprising a router alert option header indicating that the remainder of the hop-by-hop extension

header is optional for a router to read, and a value field indicating that the remainder of the hop-by-hop header is provided for the gateway support node, wherein the remainder of the hop-by-hop extension header includes a home field providing a home address of a mobile node, to detect that the next header field of the Internet packet includes the hop-by-hop extension header, and to detect the router alert option header in the hop-by-hop extension header, and the value field indicating that the remainder of the hop-by-hop extension header is provided for the gateway support node, and upon detecting the value field indicating that the remainder of the hop-by-hop extension header field is for the gateway support node, to recover information from a field provided in the remainder of the hop-by-hop extension header for use in controlling egress and/or ingress of Internet packets to the packet radio network in accordance with the information, and to control ingress of Internet packets from the external communications network to the packet data bearers of the packet radio network by detecting from the information field provided in the remainder of the hop-by-hop extension header, a source home address of a mobile correspondent node communicating the Internet packets, using the source home address of the mobile correspondent node to identify the packet data bearer for communicating the Internet packets to a correspondent node attached to the packet radio network, and allowing ingress of the Internet packets to the identified packet data bearer, the gateway support node being operable upon receipt of the Internet packet. As described above, neither Rinne, AAPA, Morrow nor their combination teach 1) each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets, 2) a source home address of a mobile correspondent node communicating the internet packets, 3) a router alert option header indicating that the remainder of the hop-by-hop extension header is *optional* for a router to read or 4) a value field indicating that the remainder of the hop-by-hop header is provided for the *gateway support node*. For at least these reasons, the independent Claim 11 is allowable over the teachings of Rinne, AAPA, Morrow and their combination.

Claims 12 and 15-17 are dependent on the independent Claim 11. As described above, the independent Claim 11 is allowable over the teachings of Rinne, AAPA, Morrow and their combination. Accordingly, Claims 12 and 15-17 are all also allowable as being dependent on an allowable base claim.

The independent Claim 18 is directed to a method of operating a gateway support node to interface between an external packet data communications network and a packet radio network, the packet radio network providing a plurality of packet data bearers for communicating the Internet packets with nodes attached to the packet radio network, each of the packet data bearers

being defined with respect to a source home address of the nodes communicating the Internet packets. The method of Claim 18 comprises receiving an Internet packet comprising a header field, the header field including a field identifying a source address of the Internet packet, a field identifying a destination address of the Internet packet and a next header field identifying whether an extension header follows the header and a type of the extension header, the next header field identifying that the extension header includes a hop-by-hop extension header, the hop-by-hop extension header including a router alert option header indicating that the remainder of the hop-by-hop extension header is optional for a router to read, and a value field indicating that the remainder of the hop-by-hop header is provided for the gateway support node of the packet radio network, the remainder of the hop-by-hop extension header including a field providing a home address of a mobile node, detecting that the next header field of the Internet packet identifying that an extension header includes the hop-by-hop extension header, detecting the router alert option header and the value field in the hop-by-hop extension header indicating that the remainder of the hop-by-hop header is provided for the gateway support node, and upon detecting the value field indicating that the remainder of the hop-by-hop extension header field is for the gateway support node, recovering from a field provided in the remainder of the hop-by-hop extension header information for use in controlling egress and/or ingress of Internet packets to the packet radio network in accordance with the information, wherein, the controlling the ingress of Internet packets from the external communications network to the packet data bearers of the packet radio network in accordance with the information, includes detecting from the information field provided in the remainder of the hop-by-hop extension header field a source home address of a mobile correspondent node communicating the Internet packets, using the source home address of the mobile correspondent node to identify the packet data bearer for communicating the Internet packets to a correspondent node attached to the packet radio network, and allowing ingress of the Internet packets to the identified packet data bearer, and otherwise dropping the Internet packet. As described above, neither Rinne, AAPA, Morrow nor their combination teach 1) each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets, 2) a source home address of a mobile correspondent node communicating the internet packets, 3) a router alert option header indicating that the remainder of the hop-by-hop extension header is *optional* for a router to read or 4) a value field indicating that the remainder of the hop-by-hop header is provided for the *gateway support node*. For at least these reasons, the independent Claim 18 is allowable over the teachings of Rinne, AAPA, Morrow and their combination.

The independent Claim 24 is directed to a computer readable memory device comprising computer executable instructions forming a computer program to be executed by a data processor within a computer. The program of Claim 24 comprises receiving an Internet packet comprising a header field, the header field including a field identifying a source address of the Internet packet, a field identifying a destination address of the Internet packet and a next header field identifying whether an extension header follows the header and a type of the extension header, the next header field identifying that the extension header includes a hop-by-hop extension header, the hop-by-hop extension header including a router alert option header indicating that the remainder of the hop-by-hop extension header is optional for a router to read, and a value field indicating that the remainder of the hop-by-hop header is provided for the gateway support node of the packet radio network, the remainder of the hop-by-hop extension header including a field providing a home address of a mobile node, detecting that the next header field of the Internet packet identifying that an extension header includes the hop-by-hop extension header, detecting the router alert option header and the value field in the hop-by-hop extension header indicating that the remainder of the hop-by-hop header is provided for the gateway support node, and upon detecting the value field indicating that the remainder of the hop-by-hop extension header field is for the gateway support node, recovering from a field provided in the remainder of the hop-by-hop extension header information for use in controlling egress and/or ingress of Internet packets to the packet radio network in accordance with the information, wherein, the controlling the ingress of Intemet packets from the external communications network to the packet data bearers of the packet radio network in accordance with the information, includes detecting from the information field provided in the remainder of the hop-by-hop extension header field a source home address of a mobile correspondent node communicating the Internet packets, using the source home address of the mobile correspondent node to identify the packet data bearer for communicating the Internet packets to a correspondent node attached to the packet radio network, and allowing ingress of the Internet packets to the identified packet data bearer, and otherwise dropping the Internet packet. As described above, neither Rinne, AAPA, Morrow nor their combination teach 1) each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets, 2) a source home address of a mobile correspondent node communicating the internet packets, 3) a router alert option header indicating that the remainder of the hop-by-hop extension header is *optional* for a router to read or 4) a value field indicating that the remainder of the hop-by-hop header is provided for the *gateway*

*support node*. For at least these reasons, the independent Claim 24 is allowable over the teachings of Rinne, AAPA, Morrow and their combination.

Within the Office Action, Claims 13, 14, 19, 26 and 27 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Rinne in view of AAPA and Morrow and in further view of U.S. Patent No. 6,915,325 to Lee et al. (Lee). The Applicants respectfully disagree.

Claims 13, 14, 26 and 27 are dependent on the independent Claim 11. As described above, the independent Claim 11 is allowable over the combination of Rinne, AAPA and Morrow. Accordingly, Claims 13, 14, 26 and 27 are all also allowable as being dependent on an allowable base claim.

Claim 19 is dependent on the independent Claim 18. As described above, the independent Claim 18 is allowable over the combination of Rinne, AAPA and Morrow. Accordingly, Claim 19 is also allowable as being dependent on an allowable base claim.

Within the Office Action, Claim 28 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Rinne in view of AAPA and Morrow and in further view of Lee. The Applicants respectfully disagree.

As described above, the combination of Rinne, AAPA and Morrow does not teach 1) each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets, 2) a source home address of a mobile correspondent node communicating the internet packets, 3) a router alert option header indicating that the remainder of the hop-by-hop extension header is *optional* for a router to read or 4) a value field indicating that the remainder of the hop-by-hop header is provided for the *gateway support node*. Further, as recognized within the Office Action, the combination of Rinne, AAPA and Morrow does not teach computer readable memory device comprising computer executable instructions forming a computer program to be executed by a data processor; egress packet filtering in accordance with a destination address of the internet packets; egress of the internet packets being allowed for internet packets having a legitimate destination address; and upon receipt of the internet packet and allowing egress of the internet packets if the gateway support node recognizes the destination home address as a legitimate home address. [Office Action, page 27]

Lee teaches a method and program code for communicating with a mobile node through tunnels. Lee teaches that location update message for a mobile node can be made interceptible by routers which form tunnels for communication with the mobile node. [Lee, Abstract] Lee

further teaches that to form a tunnel, the correspondent agent binds the mobile node address with the care of address received in the location update message. [Lee, col. 4, lines 11-17, Figure 3] However, Lee does not teach 1) each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets, 2) a source home address of a mobile correspondent node communicating the internet packets, 3) a router alert option header indicating that the remainder of the hop-by-hop extension header is *optional* for a router to read or 4) a value field indicating that the remainder of the hop-by-hop header is provided for the *gateway support node*.

Additionally, the combination of Lee and Rinne/AAPA/Morrow is improper as Lee is non-analogous art. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of Applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Furthermore, the MPEP states, "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." In re Ratti, 270 F.2d 810, 123 (CCPA 1959); MPEP §2143.01. Here, Lee is directed to IPv4, contrary to the invention, Rinne, AAPA and Morrow which all apply to IPv6. This difference is significant specifically in the context of packet ingress and egress as IPv6 does not define foreign agents, while IPv4 does, and therefore Lee utilizes foreign agents that cannot be used in IPv6. Accordingly, Lee is non-analogous art and the combination is improper. Further, Lee addresses a different problem than the claimed invention. Lee aims at reducing the "high volume" of registration traffic from a mobile node to the home agent each time the mobile node moves by making the border router intercept the registration message (binding update) and then acts as the proxy of the mobile node without further forwarding the registration to the home agent as long as the mobile node stays in the same network as the border router.

Therefore, even if their combination is proper, because neither Rinne, AAPA, Morrow or Lee teach 1) each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets, 2) a source home address of a mobile correspondent node communicating the internet packets, 3) a router alert option header indicating that the remainder of the hop-by-hop extension header is *optional* for a router to read or 4) a value field indicating that the remainder of the hop-by-hop header is provided for the *gateway support node*,

nor can their combination. Accordingly, neither Rinne, AAPA, Morrow, Lee nor their combination teach the presently claimed invention.

The independent Claim 28 is directed to computer readable memory device comprising computer executable instructions forming a computer program to be executed by a data processor within a computer. The program of Claim 28 comprises receiving an Internet packet comprising a header field, the header field including a field identifying a source address of the Internet packet, a field identifying a destination address of the Internet packet and a next header field identifying whether an extension header follows the header and a type of the extension header, the next header field identifying that the extension header includes a hop-by-hop extension header, the hop-by-hop extension header including a router alert option header indicating that the remainder of the hop-by-hop extension header is optional for a router to read, and a value field indicating that the remainder of the hop-by-hop header is provided for the gateway support node of the packet radio network, the remainder of the hop-by-hop extension header including a field providing a home address of a mobile node, detecting that the next header field of the Internet packet identifying that the ~~an~~ extension header includes the hop-by-hop extension header, detecting the router alert option header and the value field in the hop-by-hop extension header indicating that the remainder of the hop-by-hop header is provided for the gateway support node, and upon detecting the value field indicating that the remainder of the hop-by-hop extension header field is for the gateway support node, recovering from a field provided in the remainder of the hop-by-hop extension header information for use in controlling egress and/or ingress of Internet packets to the packet radio network in accordance with the information, wherein, the controlling the ingress of Internet packets from the external communications network to the packet data bearers of the packet radio network in accordance with the information, includes detecting from the information field provided in the remainder of the hop-by-hop extension header field a source home address of a mobile correspondent node communicating the Internet packets, using the source home address of the mobile correspondent node to identify the packet data bearer for communicating the Internet packets to a correspondent node attached to the packet radio network, and allowing ingress of the Internet packets to the identified packet data bearer, and otherwise dropping the Internet packet, performing egress packet filtering in accordance with a destination address of Internet packets received from the plurality of packet data bearers, egress of Internet packets being allowed for Internet packets having a legitimate destination address, and upon receipt of the Internet packet, detecting from information provided in the remainder of the hop-by-hop extension header field for the gateway support node a

destination home address of a mobile correspondent node which is to be the destination of the Internet packets, and allowing egress of Internet packets if the gateway support node recognises the destination home address as a legitimate home address. As described above, the combination of Rinne, AAPA, Morrow and Lee is improper. As further described above, the combination of Rinne, AAPA, Morrow and Lee does not teach 1) each of the packet data bearers are defined with respect to a source *home* address of nodes communicating the internet packets, 2) a source home address of a mobile correspondent node communicating the internet packets, 3) a router alert option header indicating that the remainder of the hop-by-hop extension header is *optional* for a router to read or 4) a value field indicating that the remainder of the hop-by-hop header is provided for the *gateway support node*. For at least these reasons, the independent Claim 28 is allowable over the combination of Rinne, AAPA, Morrow and Lee.

Applicants respectfully submit that the pending claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
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